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MAN AND HIS ENVIRONMENT IN GERMANY

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I.

The Climate.

THE northernmost part of Germany lies in about the same latitude as the southern tip of Alaska, and the entire country is north of the latitude of the northernmost point of Maine. Yet it has not a cold climate. In the north the winter climate is raw and damp, but the snowfall is not heavy and extremes of cold are not common. For instance, during the winter of 1910 which was, however, milder than usual, there were only four or five days ot sleighing in Berlin, in the latitude of southern Labrador, and about an equal period of skating on the shallow ponds of the city parks. There was much cloudiness and much rain, and for days, and even weeks, the sun was not seen; and when the weather was clear, the sun was so low that one scarcely realized the fact in the city. A little after four o'clock it is dark in midwinter; but in midsummer the days are very long. While in summer there are some periods of exceptional heat, whose effect is intensified by the humidity, the summer weather is usually cool, and there is an abundance of rain.

The cloudiness, rainfall and equable temperatures are the result of the damp west winds which prevail from the Atlantic whose temperature is raised by the inflow of warm waters from the southwest supplying abundant vapor and tempering the heat of summer and the cold of winter. Naturally the influence of the ocean winds diminishes with distance from the sea, that is, toward the east and the south; but in the latter direction the change is masked by the fact that the land surface rises in that direction. Thus at Munich (1703 feet) though further south than Berlin, the winters are colder, and because of the elevation the summers are cooler; but in spite of the distance from the sea the rainfall is heavy both summer and winter.

Besides the general variations in climate there are numerous local differences, as between valley and mountain, between lee and windward

slopes, and between shady and sunny exposures, all of which give rise to important local responses to climatic influence. For example the sunny slopes of the Rhine and Moselle valleys are terraced and transformed to one of the leading vine producing regions of the world, while the shady slopes are usually either bare rock or at best support only forest growth.

Even in the most favorable state, the inhabitant of Germany has been forced to a life of industry, for he must win for himself not merely subsistence from day to day, but he must provide adequate food, clothing and shelter for the long period of winter. Certain favorable conditions, wisely taken advantage of for many centuries, and careful modification and utilization of less favorable conditions have bred a race of people whose profound influence on Europe and the rest of the world has spread far beyond the limits of Germanic speech, even extending that term to English. No nation of the world today shows a more thorough, intelligent and scientific utilization of its resources than Germany. To her we of the United States must look for those lessons in conservation of soil, water, mineral and forest which we so sorely need. Her resources are husbanded; waste is reduced to a minimum; natural conditions are made use of when possible; they are improved upon where necessary; and this little country, smaller than our single state of Texas, not only supports a population of 63,000,000, but is increasing in industry, wealth and prestige as no other country in the world is doing save perhaps the United States. No country of Europe, excepting Russia, has so increased in population in the last half century.

The Soil and its Cultivation

Except for the rainfall, which is ample, the climate of Germany is not especially favorable except in spots. Only here and there for instance, is the climate warm enough for grape culture. It is the hardy grains, fruits and vegetables upon which the agriculturist must chiefly depend. Nor is the soil good, on the whole. On the northern plain there are extensive stretches of soil so sandy that it has been found more suitable to forest growth than to crops. In the plateau and low mountain region of central and southern Germany there are broad tracts of forest and there are extensive pasture lands where the slopes are too steep, or the soil too thin or sterile for successful agriculture. Yet the soil is everywhere made to yield its utmost, and Germany is an important agricultural nation. Ninety-five per cent of the land is productive, including forests and pasture. Where farming is carried on it is done intensively; the soil is given crops to which it is best adapted; the ground is worked carefully foot by foot; fertilizing materials are carefully saved and utilized; the soil is not exhausted and allowed to run down; and no spaces are left for weeds or brush by fence-side and roadside. As one passes through them in a train

the farm lands look like a succession of carefully cultivated gardens with narrow strips of hay, clover, grain, potatoes, etc., all thriving as only properly cared-for crops can. It is a crime to pick an apple, or even a cherry, from a tree whose limbs overhang a highway, for every tree has an owner who expects a profit from his fruit.

When the methods of German agriculture prevail in the United States our yield per acre will be greatly increased, our acreage will be multiplied, and the population that can be supported will be increased many fold. Those who fancy that they see danger of over population in the United States in the no distant future, or fear that we may not continue to supply ourselves with food, need only study the possibilities of application of German methods to reassure themselves. It may be long before the American farmers' wives and girls work day after day in the fields, or before milch cows are put to the plow, as in Germany; but care to keep up the soil, a study of adaptation of crops to soil, elimination of weed patches between fields, and proper tillage and fertilization of the soil are all easily within reach. Doubtless these improvements will become widespread when land becomes of sufficient value to demand greater care.

Main Surface Features

The surface of Germany is exceedingly complex in detail, but it is not my purpose to discuss the detailed topography and its influences, interesting and important though this is. Omitting the Alpine section, for the southern boundary extends a short distance into the Alps, Germany may be said to consist of two quite different parts, the northern half a broad plain, the southern half a plateau which rises gradually, with somewhat irregular boundary, above the southern edge of the plain.

On the whole, the northern plain is remarkably level, though with low hills and hilly areas here and there. It was covered by the continental glacier and therefore has local minor irregularities of topography and soil due directly or indirectly to glacial deposit—moraines, drumlins, sand dunes, lake clays, lake basins, and swamps. There are extensive pasture lands, tracts of forest, and much land in crops. It is essentially a farming country, like the rest of Germany utilized to the utmost, and producing the crops of a raw, damp climate. There has been a great addition to the extent of the farm land by the drainage of swamps, as at Spreewald, near Berlin, where a folk has lived and preserved peculiar customs and costumes in the midst of a broad swamp which they have drained. The houses front upon the narrow drainage ditches and the people travel to their work, or to church, or to visit one another, in boats pushed with spiked poles, along the shallow canals. Protected by their swampy environment, these people have been so little influenced that we have here a bit of the middle ages almost at the door of the fifth greatest city of the world.

The plateau section of Germany is far more complex than the northern, or Prussian, plain. It is composed of many parts, of different geological history, and of different topography, a consideration of which could not be undertaken in an article of this scope. Speaking very generally, it is a plateau, varying in elevation from place to place, whose origin has been, first, complex mountain uplift, then reduction by denudation to the rolling condition of advanced maturity of topography, to which the name peneplain may properly be applied, then uplift of variable amount, with faulting, with local areas of downsinking and with volcanic eruption, and finally dissection by stream erosion. As a result of this complex history, only the outline of the main features of which were stated in the preceding sentence, the southern half of Germany has a very varied, though subdued, topography.

The main element is the peneplain plateau, and when upon its surface, one sees mainly levelness or hilly topography; but in the different sections there are different elevations, and notable differences of topography in detail. A second noteworthy element of the topography is the presence of small areas of low mountains like the Vosges, the Black Forest, the Hartz and the Erz Gebirge, which are mainly either the upturned edges of fault blocks, or parts of the plateau where the rocks are so resistant that they were not worn down to the general peneplain level. A third noteworthy interruption of the plateau surface is where blocks of the earth's crust have settled below the plateau level, so-called *graben*, like the broad middle Rhine valley between Bingen and Basel. A fourth feature of the plateau is the abundance of deep, narrow river valleys, veritable gorges, which cross it in various directions, notably the gorges of the Rhine and its tributaries, such as the Moselle from the west and the Lahn from the east. Some of these valleys, like the Moselle, still preserve the meanders with which they formerly swung in broad, sweeping curves over their floodplains on the ancient peneplain, but now etched into the mountain rock in which the rivers are entrenched. These gorges have precipitous sides, and from their bottoms one seems to be in a mountainous country; but from their tops one looks out over a rolling farming country; and a few miles, or at times even a few hundred yards, from the edge of the gorge one would not suspect that he was on the verge of a valley several hundred feet deep. The larger of these gorge valleys have been cut down so near to grade that the river current is nowhere so rapid as to check navigation; but the smaller side streams are still actively gnawing their way down into the plateau, and their headwaters are on the plateau top.

German Forestry

Much of the plateau country is unsuited to agriculture because of unfavorable climatic or soil conditions, or because of the steep slopes. Most

of such country is planted with forest, treated as crops, so that Germany is an important lumber producing country. Forest farming, or forestry, is practiced in a most intelligent and scientific manner. Upon German methods is based the scientific forestry of the world. There is no slashing and ruthless destruction of the forest and there are no extensive forest fires. Individual trees are selected for cutting, or small tracts are cleared, and even the twigs are utilized. Cutting is carefully planned and executed in order to yield the greatest return and the least waste. A cut-over area is replanted and a large forest yields a continuous revenue, as a farm does. The forest is kept free from useless undergrowth; weak trees or trees that crowd other better ones are removed; roads and paths are maintained through the forest; the spread of fire is prevented by plowed trenches, and the forest is patrolled by trained foresters. Under Fernow and Pinchot, chiefs of the United States Forestry Service, these German methods were introduced into the United States, and it is one of the objects of the conservation movement, for which Pinchot stands, to continue and extend these methods. It is the duty of all patriotic American citizens to stand in support of this movement in order that our great forest resources may not continue to be wasted, as they have been, for the enrichment of a few and the impoverishment of the future.

These forest areas of Germany line the gorge sides and cover the mountains where soil or slope are unfavorable for crops, and smaller patches dot the surface whenever the conditions favor forest rather than crops. Besides yielding a return in wood crop, and in other products of forest trees, the German forests exert an important influence in regulating the run-off of the rainwater and thus in regulating the streams and in diminishing the danger from floods, as well as in checking the removal of soil from highland to lowland, with the accompanying stripping of the thin soil from the mountain slopes and its deposit in destructive sheets of waste on the more fertile lowlands.

The German forests are further utilized as a home for edible wild animals, notably the rabbit, the deer and certain birds, carefully protected and killed for food only at certain seasons, and in reasonable numbers. Thus we have the peculiar anomaly of finding in the densely settled country of Germany a far greater use of game as an article of diet than in our country with its great tracts of wilderness. At the proper season, game is one of the conspicuous objects exposed for sale in the meat markets of the cities.

Farming Areas in the Plateau

In the plateau the most extensive farming areas are on the plateau uplands between the more elevated mountain portions and between the gorges of the deeply entrenched rivers. Here one finds numerous villages and small towns, for, in general, the German farmer dwells in a village

walking to his farm lands which radiate out from the village center. There are certain areas where isolated farms and farm houses, like those in America, are dominant, but, in general, this is not the case. Most of the gorge valleys are too narrow and too steep sided for extensive farming, but where conditions are favorable, as in narrow strips of floodplain, or on less steeply sloping valley sides, the soil is cultivated. The chief exception to the rule of absence of cultivation in the gorge valleys is in the Rhine valley and some of its tributaries, notably the Moselle. Here, for centuries, those slopes having sunny exposures have been terraced in the Italian style, at great expense of labor, to become the seat of remarkably productive vineyards. Probably this method of utilization of slopes normally too steep and rocky for crops was introduced by the Romans when they used the Rhine as a highway to northern Europe. It is used also to some extent for other fruits and vegetables, but in the narrower slopes, the crops that will grow are not of sufficient value to repay the vast work of removing stones, building retaining walls, and carrying soil to fill the space between the walls. In the Rhine and Moselle valleys, the southern position, the distance from the sea, the protection furnished by the gorge enclosure, the presence of water to moderate the climate, and, above all, the steep slopes facing the mid-day sun so as to receive its rays at approximately right angles to the slope, give rise to a local climate in which the growing season is prolonged, the early and late frosts are diminished, and the necessary summer heat is provided for highly successful grape culture.

Some of the best farming sections are in the broader valleys of which the most important example is the graben valley of the Rhine above Bingen. This valley has a fertile soil, a gently rolling topography, and a warm climate, for it lies in the southern part of Germany, is bordered by mountains, and lies only about 300 feet above sea level. It is therefore a densely populated, fertile garden, and it has the great advantage of situation on the Rhine highway. From these fertile lowlands to the pasture lands of the mountains there is every gradation; and consequently a great variety of products of a cool temperate climate. Barring only a very small area in the Alps in the extreme south, and smaller areas in lower mountains, no part of Germany is too high for crops or forest; and in no part is there too little rainfall for agriculture. There are, however, such great tracts of land with steep slopes, thin soil, and sterile soil, and so much swamp land and upland with cool summer climate that only about 50 per cent of the land is adapted to crops. Only by the most careful and intelligent methods is the farm land made to yield a living to the dense agricultural population. Owing to the careful utilization of pasture lands, and to the skillful practice of forestry, the percentage of waste land is reduced to a minimum,—but 9 percent of the total land

area. Thus Germany ranks high among European nations in both its farm and its forest products. By carefully husbanding these fundamentally important resources abundant material is furnished for the maintainance of a wide variety of manufactures. Thus soil and climate, though not especially favorable on the whole, are so utilized by these people as to yield large returns in crops, domestic animals, and forest products.

Mineral Resources

Far more favorable than soil and climate are the resources from the rocks beneath the soil, and these have been utilized with equal intelligence and scientific skill to the great profit of the nation. The geological structure of Germany is extraordinarily complex.

The mineral products include a large proportion of the materials most useful to man:—an abundance of building stone of many kinds; clays, sands and cement materials, widely scattered; salt and brines; a great variety of metalliferous minerals, including ores of gold, silver, copper, lead and zinc, and rich deposits of iron; fuels, notably bituminous coal, brown coal and peat; and other products of value and importance. These are all made to contribute to the wealth of the nation and the same careful attention to conservation of resources and elimination of waste is seen here as in agriculture and forestry.

Inland Waterways

In its development of industries, as in other ways, Germany has been greatly influenced by its natural facilities for transportation. The mountains and dissected plateau, with their broad tracts of forest, interpose obstacles to travel, but the major rivers, flowing in gorges whose beds are reduced nearly to grade, make excellent highways whose usefulness is rendered greater by the abundant and well distributed rainfall, by the supplies of water contributed by headwaters in the mountains and upland plateau, and by the regulation of run-off brought about by the forests in the headwater region. The usefulness of the navigable rivers is also increased by the mildness of the winter climate by reason of which, even though so far north, navigation upon them is interrupted little if at all.

The Rhine

Among the river highways none equals the Rhine in importance; in fact it is without rival among any similar highways in the world. Fed by the melting snows of the Alps and by numerous tributaries from the plateau and its mountainous portions, and with its volume regulated by passage through Lake Constance, the Rhine flows in Germany, first through the fertile graben valley, then through its gorge, and finally over the northern plain and its delta to the sea in the Netherlands. From Basel to the sea there is no rapid that very seriously interferes with navigation, and the river has been carefully improved by dredging, by

retaining walls and by other devices for straightening the course, shortening the distance and maintaining sufficient depth of water for safe navigation in the channel. Ocean boats of moderate size pass up the river, and Cologne is essentially a seaport, although far inland. Other boats load and unload on the river banks, and at the busiest points artificial harbors are made for the fleet of river boats taking on or putting off their loads. The entire valley from well out on the northern plain as far up as Basel is densely settled and the seat of great and varied industry, and near Cologne are the most extensive coal fields of Germany whose fuel is needed in the industries of the upper valley. There are navigable tributaries like the Moselle and the Main which extend the area served by this artery of commerce; and the area is still further increased by a wisely planned system of canals which connect the Rhine with the Rhone, with the Marne, with the Danube, and, across the northern plain, with the Eros and Weser.

Looking down upon the Rhine from an elevated point on the walls of its gorge one sees a constant procession of river steamers large and small, and single boats and chains of boats laden with lumber, coal and merchandise. Scores of boats may be seen in a single view, and on each side of the river is a railway line adding to the volume of traffic along this great highway. Perched upon a rock pinnacle in the range of our view is the ruin of a castle, the relic of by-gone days when river craft of different kind, but laden with valuable goods, were made to pay tribute to the robber baron for the privilege of following this highway for purposes of trade. All the centuries of the Christian era, at least, have witnessed busy traffic along the Rhine, but at no eariler period has the river attained the importance in commerce that it possesses today. It has even profoundly influenced the history and development of the German people; today it is one of the vital resources of a great empire. From its use by the German, and from its improvement at his hands, we can learn an important lesson in the utilization of our own as yet wasted resources of navigable waterways.

Other Waterways

Next to the Rhine in importance is the Elbe, similarly improved so that it is navigable into Bohemia and connected by canal across the northern plain with the other navigable rivers to the east. Though highly important as a means of transportation, the Elbe is far less significant than the Rhine in the present and past life of the nation. The very moderate slope, the abundant rainfall and the moderate evaporation in the Prussian plain are all favorable factors inviting utilization of the water highways, and the invitation has been amply accepted so that a large proportion of the transportation of heavy freight is done by boat.

(Concluded in October.)

THE ORIGIN OF SOME GEOGRAPHIC NAMES

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THE function of a name is to designate an object by pointing out some peculiar quality of that object, or some particular relation to another object. A name in some degree should be descriptive. The ancients recognized the true functions of names. Hebrew, Greek, and Latin names are strikingly meaningful. The same is true of the Persian, Hindu, and Chinese names found in Geography and History. Names found in the various languages of the Mediaevals are rich in content. And not until the English-speaking people became ubiquitous have names been recklessly given.

Every science has its peculiar glossary or vocabulary. The successful teacher of any given science leads his pupils to read into every technical term its true meaning. In this way names become less arbitrary, their use more intelligible, and their forms more easily remembered. Surely that pupil who said on a recent examination that "sandstone is an ignominious rock," and "a monadnock is a wandering tribe," had not had special lessons on Etymology.

Geographic names often teach us no little history of the discoverers, explorers, and colonizers of a region. Such names as Boston, Bradford, Bristol, Cambridge, Exeter, Gloucester, Hull, Manchester, Norwich, Oxford, Plymouth, Sheffield, Taunton, and many others found on the map of *New* England are also found on the map of *Old* England. Surely, one making this discovery for the first time, could not think this to be a coincidence nor a fortuity. An historical study will reveal the fact that these New England names are *namesakes*. And descendants of the early settlers of *New* England have faithfully carried these names into the Middle West.

The aboriginal tribes of central New York have recorded their preoccupation of the region in such terms of their language as Cayuga, Mohawk, Oneida, Onondaga and Seneca,—names of the Five Nations.

On our southwestern frontier, such names as Santa Ana, Santa Barbara, San Bernardino, Santa Clara, Santa Cruz, San Diego, San Francisco, San Juan, Santa Marcial, Santa Rosa, and many other kindred terms bear witness to the Spaniard's occupation and his zeal in religion.

Places named Deaf Smith, Yankee Jim, Lovelocks, Shoo-Fly, Fair-Play, Wagon Wheel Gap, and You Bet imply some of the frontier experiences of adventurers, miners and cowboys. The following, from similar sources, have been in legitimate use: Boot-Jack Ranch, Dead Mule Gulch, Devil's Kitchen, Hang-town, Hell's Delight, Jackass Flat, Poker Flat, Shanty-town, Slab-town, and Whiskey Flat. Such names, however, are ephem-

eral. As the population increases, if it does increase, a refining element comes in and demands names which, at least, inspire respect. When the inhabitants of Hell-fer-sartin applied to the post-office department for the establishment of an office, their request was refused until they had changed the name. The interest thus far in geographic names is due to the act of association. But a greater interest is experienced through a revelation of the hidden meanings which are inherent in the words themselves.

CONTINENTS. The literal meaning of continent is *to hold* or *to contain*. A continent holds or contains all other land forms, and all water forms, except the sea itself. A continent is a continent because of its structure, and not because of its size. It may be defined as one of the five great land masses of the globe. Named in the order of size, they are Eurasia (Europe-Asia), Africa, North America, South America, and Australia. Europe is sometimes called a semi-continent. Its name is derived from Europa, who was the daughter of the Phenecian King Agenor, and mother of Minos and Sarpedon by Jupiter. Africa and South America are peninsular continents. Australia is derived from *austral*, southern. It was first called Terra Australis, or Southern Land.

The name America was unjustly given to the new-world continent by Americus Vespucius, an Italian, born at Florence, 1451. His first voyage to the new-world was not until seven years after its discovery by Columbus. Although he made three subsequent voyages, he did not have the chief command of any one of the four expeditions. Columbia, a poetic appellation, has been given to the United States in honor of Columbus.

ISLANDS. (Latin, *insula*, island.) Old English spelling, *iland*, *yland;* Anglo-saxon spelling, *igland*, *eyland*. Icelandic, *ey*, island. The *s* in island is due to confusion with isle. Anglese*y*, an island northwest of Wales, island of the Angles, or English; Guernse*y*, green island, Jerse*y*, Caesar's island, two islands south of Alderne*y;* Orkne*y*, seal (?) islands. If we pay due regard to etymology, we shall find that Orkne*y islands*, Jerse*y island*, etc., are tautological expressions, similar to *the la* Plata and Hwang-*ho River*.

PENINSULAS. From Latin *paene*, almost, and *insula*, island. Literally, almost island. As a specific name, the term peninsula was first applied to the Poloponnesus, the modern Morea. Like some other specific names in geography, *peninsula* has become generic, and now applies to any body of land almost surrounded by water.

The Scandinavian peninsula gets its name from Scandia, a supposed island, identical with the southern part of Sweden; the Iberian peninsula from the Iberians, the original people of Spain; the Dekkan peninsula, from Hindu, *Dakshin*, the South. The Dekkan is sometimes called Hither India. *Hither* India implies a *Farther* India.

While California was subject to the Spanish Crown, as well as during Mexican supremacy, the peninsular part was called Lower California and the "continental" part, Upper California. But after Upper California was ceded to the United States, its distinguishing term was dropped. The Florida peninsula was named by its discoverer, Ponce de Leon; Florida signifying "flowery land."

CAPES. Cape is from Latin *caput*, head. Hence a piece or point of land extending beyond the adjacent coast into the water is a cape. Such extensions are often called heads; in fact, much oftener in the British Isles than they are called capes. Note Flamborough Head, Kinnaird Head, Malin Head, Mizen Head. A cape is often called a point in English and French, as Point Judith, Point aux Trembles (trembling point); *punta* in Spanish and *ponta* in Portuguese. Punta Arenas, "Sand Point;" Ponta Delgada, of the island Sao Miguel (the Portuguese name of St. Michael), the largest and most populous island of the Azores.

In at least two instances a cape is called a naze (same spelling in each, but different pronunciation): The Naze, a cape at the eastern extremity of Essex, England, and The Naze, a cape at the southern extremity of Norway. Naze means *nose*, the most prominent projection of the head.

Capes are sometimes called forelands,—the meaning is obvious. Note North Foreland and South Foreland on the southeast coast of England. The southwestern cape of England is called Lands End; the northwestern cape of Spain has the same designation, but in a different language, *Finisterre*.

ISTHMUSES. Isthmus means *neck*, allied to the human neck. An Isthmus is a neck of land connecting two larger bodies of land. The name was first given to the neck of land which connects the Morea and the mainland, and was called the Isthmus of Corinth.

PLAINS. Latin *planus*, akin to English *floor;* applied to a tract of land that is comparatively level and especially low. *Playa*, a Spanish word, is akin to plain, but in its use is restricted to "a broad level spot on which water accumulates after rain, and which subsequently becomes dry by evaporation."

A peneplain (almost plain, from Latin *paene*, almost) is what was once a plateau or mountain region, but now eroded almost to the level of a plain. A peneplain is sometimes termed a plain of destruction. If the remnant of the eroded plateau is large, it is called a *mesa*, Spanish for table; if small, a *butte*, French for landmark. The remnant of the eroded mountain region is called a *monadnock;* it is of Indian origin and was first given to Mt. Monadnock, in southwestern New Hampshire. *Monadnock* is one of a number of geographic names that have passed from a specific application to a generic use.

The Staked Plain, Spanish *Llano Estacado* is "an extensive sterile plateau in northwestern Texas and southeastern New Mexico. The name is derived from lines of stakes which were set up to guide travelers; or, according to another account, from the stalks of the yucca plant, resembling stakes."

Lacustrine Plain, Latin *lacus*, is the bed of an extinct lake. A notable example is the valley (more properly plain) of the Red River of the North which is the bed of the interglacial lake, recently named Lake Agassiz, in honor of Louis Agassiz, the distinguished Swiss naturalist.

Fluviatile plain, Latin *fluvius* river, is a plain produced by river action; often called flood plain, because produced by the river at flood, or during successive overflows. A fluviatile plain at the mouth of a river, as of the Mississippi and the Nile, is called a deltaic plain. A fluviatile plain is sometimes termed a plain of construction.

A plain (more properly a peneplain) bordering a mountain range, is called a piedmont plain. The peneplain bordering the Blue Ridge on the east is an example. The term *piedmont* means "foot of the mountain," from French *pied*, foot, and *mont*, mountain. It describes with regard to location only. Piedmont *flora* and piedmont *industries* are as appropriate terms as piedmont *region*.

MOUNTAINS. Latin *mons*, mountain. *Mon*tana, Spanish, "mountain land"; *Mont* Blanc, French, "white mountain"; *Monte* Argentario, Italian, "silver mountain."

The Spaniards give the name *sierra* to a mountain range, especially to one whose sky-line is serrated (*serra*, saw). Hence we have in the United States, as memorials to Spanish exploration, Sierra Blanca, "white mountains"; Sierra Capitana, "captain (i. e. chief) mountains"; Sierra de Dolores, "mountain of our Lady of Sorrow"; Sierra de los Ladrones, "mountains of the robbers"; Sierra Florida, "blooming mountains"; Sierra Nevada, "snowy mountains"; and in Mexico, Sierra Madre, "mother mountains, or main range."

The pointed summits of mountains are called peaks, as Pikes Peak, Fremonts Peak, etc. The term is sometimes applied to the whole mountain, if isolated and ending in a peak, as the Peak of Teneriffe. The rounded summits of mountains are called domes, Latin *domus*, house. Sharp pinnacles of rock are often called needles. Prominent peaks of the Alps are called horns, as the Matterhorn, the Wetterhorn, etc. More than thirty other names of Alpine peaks are compounded with *horn*.

OCEANS. The name is derived from the Latin *Oceanus*, the god of the great outer sea, or the river which was believed to flow around the whole earth.

The Atlantic Ocean is named in honor of Atlas, one of the older family of gods, who bears up the heavens. The Indian Ocean is named from

India, the country that borders it on the north; India is so called from the *Indus,* the name of one of its great rivers. Arctic Ocean (more properly, Arctic Sea) gets its distinctive name from Greek *arktos,* a bear. Hence pertaining to or situated under the northern constellation called the Bear. Antarctic Ocean, Latin *antarcticus,* from *anti,* opposite, and *arcticus.* Pacific Ocean, Latin *pacificus,* of a peaceful character. The name was first applied by Magellan, its first European navigator, because of its exemption from violent tempests during his passage over it.

SEAS. A sea is a body of salt water of the second rank. The term is sometimes applied to the whole body of salt water that covers nearly three-fourths of the globe.

Archipelago, from Greek *archon,* chief, and *pelagos,* the sea; hence, *chief sea.* The name Archipelago was first applied to the Aegean, or Grecian Archipelago. Since this sea contains many islands, the term has been applied to any arm of the ocean containing many islands. The name is also applied to the islands themselves, hence a greater departure from the literal meaning of the term.

The Euxine literally means "the hospitable sea."

The name Hwang-hai, Yellow Sea, indicates the color of its water, which is imparted to it by the Yellow River, Hwang-ho. The Yellow River is also called "China's Sorrow," because of its frequent and disastrous floods.

The Dead Sea is a *dead* sea. "Its waters are so thoroughly impregnated with salt that no animal forms of any kind but the lowest are known to exist in it."

The Mediterranean Sea, between Europe and Africa, was the first sea to have the term *mediterranean* applied to it (Latin *medius,* middle, and *terra,* land). The name is now given to any sea that is nearly inclosed with land. The Arctic Sea, Hudson Bay, and Gulf of Mexico are mediterraneans.

STRAITS. Latin *strictus,* French *etroit,* drawn together. Detroit means "strait." This locality was first visited by the French in 1610, who noted the "drawing together" of the waters whether the *etroit* were entered from Lake Erie or from Lake St. Clair. In this instance *etroit,* or *detroit,* restricted in its application, became a proper name, Detroit. But when the English added the term river, the significance of *Detroit* became somewhat obscure, and its beauty tarnished. But it must be admitted that the body of water is more properly a river than a strait.

The northern end of the strait was favorable for human occupation, hence the foundations of the city of Detroit were laid.

The term gut, Anglo Saxon *gut,* a channel, is sometimes used for strait; as the Gut of Canso, between Nova Scotia and Cape Breton. The term is also found in Catte*gat* and Horll*gat,* the latter now Hell*gate.*

CHANNELS. Latin *canalis*, is a name given to a wide strait; as English Channel, St. Georges Channel. But why the term channel (Bristol) was ever given to the estuary of the Severn River is not apparent.

SOUNDS. A sound is a passage of water whose depth may be easily measured by means of a *sounding*-line.

LAKES. Latin *lacus*, lake; Gaelic *loch*, lake; Loch Katrine, in the Scottish highlands; Irish *lough*, lake; Lough Ree, Belfast Lough, and many others in Ireland.

Regarding the origin of the name of Lake Itasca, the following is from Southwick's *Quizzism and Its Key:* "Certain explorers having found what they considered the source of the Mississippi, a discussion arose as to what they should call it; an old voyager said: 'Let's make a new name by coining a word; some of you learned ones tell me what is the Latin for true?' '*Veritas*,' was the answer. 'Well, now, what is the Latin for head?' '*Caput*.' 'Now write the two words together.' The linguist wrote on a piece of birch bark, '*veritascaput*.' 'Now drop the first and last syllables, and you will have a good name for this lake.' It was done, and the remainder was 'Itasca'; an abbreviation of the words meaning 'The true head.'"

RIVERS. Latin *rirus*, a brook. That part of a river where the current moves with greater swiftness, but without actual fall, is called a *rapid* (usually, but not necessarily, in the plural), from Latin *rapere*, to seize and carry off.

That part of a river where the water falls over a precipice is called a *waterfall*. Precipice from Latin *prae*, before, and *caput*, head; hence a headlong tumble of the water. A small waterfall is called a cascade; a large waterfall, a cataract.

POPULATION CENTERS. Many hamlets, villages, cities, and other political divisions have names whose meanings divulge the history of their origin or of the circumstances which led to their foundation.

Many names have the common ending *polis*, the Greek word for *city*, as Amphi*polis*, *amphi*, around, in Macedonia, on the Strymon, which flowed "around the city," and thus occasioned its name. Deca*polis*, *deka*, ten, a country in Palestine, which contained ten principal cities; Helio*polis*, *helios*, sun, the city of the sun, a celebrated city of Egypt, called in the Scriptures, On; Anna*polis*, city of Queen Anne; Indiana*polis*, city of Indiana; Minnea*polis*, city of Minnehaha.

Not a few cities are named for the rivers on which they are built: Arundel, a town of Sussex, England, derives its name from *Arun*, the stream on which it is situated.

Amsterdam, originally spelled *Amstelledamme*, the chief commercial city, and the capital, of the Netherlands, is named for its location on the dam of the Amstel River. Rotterdam, the second seaport of the Nether-

lands, is on the dam of the river Rotte. Names of cities ending in Anglo Saxon *ton*, and English *town*, are legion.

Many English geographic names end in *shire*, from Anglo Saxon *Sciran* (to shear, divide), meaning a county; Berk*shire*, the shire of Berk, or Berk's county, England; Lincoln*shire*, county of Lincoln; York*shire*, county of York. The expression, county of Yorkshire, in a strict sense, is tautological.

Names of population centers often end, and sometimes begin, with Anglo Saxon *ham*, home, its meaning extending to hamlet and town, the *home* hamlet and the *home* town; the German equivalent is *heim*. Examples: *Hamp*shire, *home*, shire or county; *Hamp*stead, homestead; *Hamp*ton, home town; Walt*ham*, Anglo Saxon *walt*, woodland, home in the woodland; Oak*ham*, the capital of the county of Rutland, England, oak home; Dront*heim* (or Trondhjem), home of the throne or court, a seaport and the third city of Norway.

A volume could be written on names ending in Anglo Saxon and German *burg*, town; Anglo Saxon *ford*, and German *furt*, a ford; English *sex*, Saxon; Anglo Saxon *wich*, *wick* (related to Latin vicus), a village.

A single instance more must close this paper. From Dr. Redway's *The Teacher's Manual of Geography.*

"There is a beautiful river which has long been sung in most delightful poesy—

'Onward ever, lovely river,
Softly falling to the sea;
Time that scars us, maims and mars us,
Leaves no track or trench on thee.'

This river as nearly as can be reproduced in English sounds [from the language of the Oregon Indians], was called the Wallamet, *Walla*, in their language, meaning water. Under the influence of the French traders it became *Ouilamette*. Then the Anglo-American farmer came and quickly shortened it to *Willamette*, and now there is a growing custom of cutting the word down to *Wilamet*."

On the evolution of some geographic terms, Dr. Redway has remarked: "Words show the wearing effects of time, for words suffer no less from erosion and corrasion than the things they designate."

Works consulted in the preparation of this paper: *Webster's International Dictionary, Webster's National Pictorial Dictionary, The Century Dictionary and Cyclopedia, Encyclopedia Britanica, Lippincott's New Gazetteer of the World, Lippincott's Pronouncing Biographical Dictionary, The American Tract Society's Dictionary of the Holy Bible, Redway's Teacher's Manual of Geography, Southwick's Quizzism and Its Key, Mitchell's Ancient Atlas, Mitchell's School Atlas (1853), and late grammar school geographies and physical geographies.*

SOME POINTS TO EMPHASIZE IN THE GEOGRAPHY OF THE BRITISH ISLES

1. Though lying as far north as bleak and desolate Labrador, they have a mild climate. This is due only in a small part to the Gulf Stream, which reaches nowhere near the British Isles, but rather to the prevailing winds from the south-west which have been greatly tempered by their long journey over the mild Atlantic waters; an excellent example of the mildness of west-facing coasts in the Belt of the Prevailing Westerlies.

2. Lying near to the best part of Europe, yet separated from the mainland, and not far from America, the British Isles have a uniquely favorable position. Separation from the continent during the devastating wars of the past has saved England from invasion and allowed her industries to develop. The modern factory system got its earliest and best start in England.

3. The vast wealth of coal gives the power for British mills. Iron is abundant. These two minerals are far more valuable than mines of gold; the iron and coal are near together and near the sea—a great advantage in manufacturing for export. Without the coal and iron, the Britain that we know never could have been. Her ability to manufacture is the key to all her commercial greatness.

4. Up to 60 years ago, the British people were as much an agricultural people as are the Germans or French today. They raised most of their food. Today they raise but little. Only one-tenth of the people till the soil. One-half work in mines and factories. Food for a month ahead is the limit of their stock. If cut off from outside food supplies two months the nation would starve. If cut off from foreign raw materials two months their mills would stop. A case of a great nation almost wholly dependent upon over-sea lands for the means of existence.

5. This remarkable growth of manufacturing and consequent dependence upon other lands has led to the gradual acquirement of vast colonial possessions, partly to supply needed food supplies and raw materials for manufacturing and partly to furnish markets for manufactured goods.

6. The enormous over-sea trade has called into being the greatest fleet of merchant vessels that ever sailed under any flag. Half of the ships of the world float the English colors. The widely scattered colonies, the great merchant fleet and the dependence upon outside food and raw materials, make a powerful navy absolutely necessary and the British navy equals any other two.

7. Our trade with the British Isles surpasses our trade with any four other countries combined. We sell them much more than we buy from them. They are the largest buyers of every one of our leading ten exports.

R. H. W.

GEOGRAPHIC INFLUENCES IN THE DEVELOPMENT OF INDIANA.

CHARLES R. DRYER,

State Normal School, Terre Haute, Indiana.

POSITION, SETTLEMENT AND ROUTES

THE prime physiographic factor in the development of Indiana, as of any other region, is its geographical position. The state spans the space between lake Michigan and the Ohio river, and lies athwart the lines of travel from the Atlantic seaboard of the northern states to and beyond the Mississippi. The canoemen sometimes cut across the northwest corner from the St. Joseph of lake Michigan to the Kankakee at South Bend. More frequently they ascended the Maumee from lake Erie, carried across at Fort Wayne to the Wabash and had easy paddling to the lower Ohio. It was on this route that the first white trading posts were established at Fort Wayne, Lafayette and Vincennes. The Ohio river, skirting the whole southern border of the state, was, from its size and connections, the chief natural artery of human circulation. The largest bateaus in common use found in it no serious obstruction between the Appalachian plateau and the Mississippi. The Kanawha, Kentucky and Green on one side were linked with the Whitewater and Wabash on the other to form north-south lines of communication. It was by means of the Ohio system that the first pioneer settlers came into Indiana in the first quarter of the nineteenth century, coming from the southern states and ascending the northern tributaries as far as the streams would float them. They built their homes, mills and towns in the valleys facing the watercourses, while the uplands between were left as literal "backwoods," the Saxon equivalent of the modern *hinterland*. Steamboats began to run between Pittsburgh and New Orleans as early as 1811 and on the Wabash in 1823. The first improved wagon roads were built as feeders to this system, of which the most important was the Michigan road, extended in the period 1828-1834 from Madison on the Ohio to Michigan City on the lake. New Orleans was the seaport, outlet and market of the community, to which produce was floated on flat boats, the crew often returning on foot.

When the national government found it necessary to tie its northwest territories to the old states by a highway, Indiana lay across the path, and the national road from Cumberland on the Potomac reached Richmond on the eastern border of the state in 1827 and Terre Haute on the western border in 1834, traversing the state nearly along its middle line.

When the waterway so effectively opened through the Erie canal in 1825, was to be continued westward, the old canoe route of the Maumee-Wabash was converted into the Wabash and Erie canal, which reached Fort Wayne in 1832, Lafayette in 1841, Terre Haute in 1849, and Evansville in 1854. The canal brought a tide of settlers from New England and New York into northern Indiana. In 1830 five-sixths of the population of the state lived in the southern counties, in 1850 one-half were in the canal zone, and in 1860 there were twice as many on the Wabash as on the Ohio. The main channels of trade were changed from New Orleans to New York.

The first railroad belonged to the southern circulating system. It started from Madison in 1839 and reached Indianapolis in 1847. When the railroads began to extend westward from the Alleghanies, again Indiana lay across the path. About 1850 the present Vandalia line began to parallel the national road from Pittsburgh, and in 1852 crossed the state. A few years later the Wabash railroad followed the northern canoe and canal route from Toledo, while the Ohio and Mississippi crossed the southern hills from Cincinnati, all on their way to St. Louis. Then began the process, now nearly completed, by which homesteads and towns turned their backs upon the streams and faced toward the railroads. Of the riverain centers of population, many disappeared or dwindled to insignificance, and those which remain even now owe their ability to keep a respectable place in the census list to their railroad connections. In fifty years a score of east-west trunk lines have crossed the state, half of which sweep around the head of lake Michigan to Chicago. A half dozen lines connect the Ohio with the lakes. The total mileage is about 7,000, and the various systems with their branches cover the state with a network which leaves few places more than ten miles from a railroad. The meshes are closest around Indianapolis and in the Chicago district, and widest in the rougher portions of southern Indiana.

Structure and Relief.

The important crustal features of Indiana are two, the bed rock and the glacial drift. The shales, sandstones and limestones which form the foundations of the state have been gently arched up along a belt crossing the state diagonally from Cincinnati to Chicago. The crown of the arch has been removed by erosion and the beveled edges of the strata lie in long strips on either side. Thus rocks of various ages and composition are exposed and produce a corresponding variety of surface, soil and quarry products. Petroleum and gas have accumulated under the crown of the arch and have been reached by borings generally less than 1,000 feet in depth.

Two or more ice sheets have covered four-fifths of the state with a mantle of glacial drift which averages 100 feet and in some places reaches

500 feet in thickness. The drift fills the old valleys, buries the bed rock topography and converts most of the state into a smooth and nearly featureless plain. Except in a few small areas, the drift constitutes one of the most productive and enduring soils in the world and absolutely determines the high rank of the state in agriculture. Farm lands and products on the drift are about twice as valuable as in the driftless region. The southern boundary of good corn yield, 4,500 bushels to the square mile, is the margin of the later, or Wisconsin drift. Its smooth surface is extremely favorable for tillage, travel and railroad construction.

The glacial drift posesses some disadvantages, the chief of which is poor drainage. The slopes are so gentle and the drainage systems so immature that a large part of the surface is occupied by lakes, marshes and "wet land." This condition is aggravated by the compact nature of the glacial clay which does not permit water to soak away readily. In the early history of the state these conditions led to the prevalence of malaria, probably through the excessive breeding of mosquitoes. Chills and fever or ague, sometimes incapacitated a whole family or community for weeks in succession, added greatly to the hardships of pioneer life, threatened to depopulate towns, not so much by death as by disgust, and seriously retarded the development of the state. Perhaps no state owes more to artificial drainage. Thousands of miles of open ditches and tile drains have inceased the productiveness of the land and practically destroyed malaria.

The glacial drift must be credited with the picturesque moraine country north of the Wabash river, studded with hills and lakes. As pleasure and health resorts for camping, boating, fishing and summer residence, and as attractive locations for schools and Chautauqua assemblies, the lakes have become a large factor for good in the life of the people.

Climate.

Indiana lies in about the middle of the so-called "temperate" belt, which means that the climate is temperate only in the spring and fall and extreme in winter and summer. The winters are so long and severe that it is necessary to make substantial provision for food and shelter for men and animals. This compels a degree of foresight, energy and thrift. The summers are long and hot enough to ripen the soft, sweet, long-kerneled, "dent" varieties of corn, which furnish more stock food per acre than any other plant grown in middle latitudes. It is favorable for the growing of grapes, melons, peaches, tomatoes, celery, tobacco and other vegetables. The rainfall of 33 to 43 inches, well distributed throughout the year, with a maximum in spring and fall and a minimum in late summer, is almost ideal for the growth, ripening and harvesting of grain, grass and fruit. Soil and climate conspire not only to favor but to compel the high rank of the state in agriculture and stockraising.

Vegetation.

Temperatures and rainfall intermediate between the extremes of the upper Missouri and lower Mississippi regions, a position lying across both the glacial and the prairie borders and the absence of barriers on all sides, place Indiana in a belt of transition or "tension," as the ecologists would say, where northern, southern, eastern and western floras overlap and intermingle. The result was that prairie herbage occupied about one-eighth of the state, mostly in scattered patches, and a heavy growth of hardwood forest covered the rest. Perhaps nowhere could America show more magnificent forests of deciduous trees, finer specimens of characteristic forms or a larger number of associated species, than existed in the valleys of the lower Wabash and Whitewater. There were forty-two species attaining a height of 100 to 200 feet and a diameter of five to ten feet. The trees decreased in size toward the north. Patches of natural bluegrass pasture were frequent and the broad prairies were at hand within at most a weeks journey by land or water. Yet the pioneers at first avoided the open prairies on account of lack of material for construction and fuel, because of the difficulty of breaking up the tough prairie sod, and partly, perhaps, from a sense of strangeness, homelessness and exposure in the open country. They preferred to undertake the incredible labor of felling the forest, burning the timber and clearing the ground for crops. This was accomplished in about two generations and the people were thoroughly trained in the principles and practice of anti-forestry. As soon as a sufficient area was cleared to assure a home food supply and transportation facilities brought access to markets, the remnants of the forest began to be manufactured into vehicles, tools, agricultural implements and furniture, a process which is still going on. Thus within a century the virgin forest has been nearly destroyed and the community is beginning to realize the importance of reforestation.

Mineral Resources and their Influence on Industrial Growth.

Besides the soils, the most widely diffused of useful minerals in Indiana are clays, used for brick and tile, and limestones quarried for construction and kiln-burning. They have been large factors from the beginning of settlement. For three-quarters of a century Indiana was predominantly agricultural. Manufactures were generally confined to domestic raw materials, such as clay and timber products, food stuffs and distilled liquors, and were distributed in accordance with local supply and transportation facilities. The discovery of natural gas in 1887 marks the beginning of the transition to the present period, when the total value of manufactures is nearly double that of farm products. The supply of apparently unlimited fuel in its most available form and at a nominal cost proved a strong attraction for capital. Conditions were favorable

for the success of almost any industry, but especially of those which require power and heat, such as the manufacture of glass, tinplate, foundry and machine products and finished steel goods. The "boom" was of course strongly localized, but within the gas belt was generally diffused. A hundred acres of farm land, provided with a switch from a railroad, was sufficient to furnish facilities for the largest plant, with cheap and healthful homes for the laborers. Thus scores of industrial villages sprang up from nothing. At the same time sleepy rural towns multiplied population by ten and were transformed into cities with metropolitan conveniences and airs. A people experienced for generations in lavish abundance of natural resources of timber and soil could not learn prudence and economy. The whole country was lighted with flaming torches which it was not worth while to turn off day or night. The stock in many a farmer's barnyard enjoyed the illumination of a quantity of gas which would have run a small factory. Houses and hotels were kept at a temperature of 80 to 90 deg. in all weathers, and a gas belt citizen could be recognized away from home by shivering in a room heated only to 70 deg. Half of the whole supply was wantonly wasted and legislation was too tardy and inefficient to check it. In twenty years the gas was practically exhausted. Plants and villages were abandoned. Houses were torn down for fuel or dismembered and transported to be set up again in another place. The diffused rural industries largely ceased to exist; but the largest and strongest towns and cities are able to hold their own, and by importation of coal their manufactures continue to flourish. Their gains promise to be in a large measure permanent.

The decline of natural gas gave a corresponding stimulus to the production of coal which had been mined in a rather small way for fifty years. Many plants were removed across the state to the coal fields, and in the case of those that did not go to the coal, the coal went to them. The final adjustment increased rather than diminished the total manufactures and distributed them more widely. The output of four million tons of coal in 1897 increased to thirteen million tons in 1907, most of which was consumed in the state.

As the supply of gas declined, many of the wells were found to yield petroleum which led to extensive oil operations in the northern part of the gas belt. Small petroleum fields were discovered in other parts of the state, which sometimes proved to be rich, but were generally short-lived. A yield of eleven million barrels in 1904 declined to four millions in 1907. The effects of the petroleum industry were largely local, but gave rise to a great oil refinery at Whiting, near Chicago.

Extensive deposits of marl in and about the glacial lakes of northern Indiana are being utilized in the manufacture of Portland cement, the essential ingredient of what promises to be the constructive material of

the future, concrete. This is itself a response to the increasing scarcity of timber, due to needless and unwise destruction of forests.

The latest industrial phenomenon in Indiana is the establishment by the United States Steel Corporation of an enormous iron smelting and steel producing plant at Gary, on the shore of Lake Michigan. This is due wholly to a location which commands the water transportation of the Great Lakes and the concentrated railroad facilities of the Chicago district, and a coal supply from the Indiana and Illinois fields. It involves the creation of a first class harbor and a new city among the sand dunes, which threatens to surpass in value of output all other cities in the state.

The physiography of Indiana may be summed up in the statement that it is a happy mean, in which diverse but not extreme factors are combined into a moderately complex unity. It is a "midland gap" through which the main currents of human and economic circulation in the United States must pass. In relief and soil it bestrides the boundary of the glacial drift with a large preponderance on the better side. It spans four degrees of latitude and in climate is medium between the cold north and the warm south, between the dry west and the wet east. In vegetation it lies across the boundary of woodland and grassland which has ever been most favorable for human habitation. While fundamentally agricultural, its mineral resources are sufficient to insure a vigorous industrial development. It is too much "in the way" to be isolated or one-sided, yet not in danger of being overrun by foreign immigration. If it shall ever cease to be the home of a prosperous community of enlightened and happy people, the event will not be due to adverse physiographic conditions.

MAP NOTICE

Mr. Caspar W. Hodgson has recently issued* a new wall map of the Philippine Islands on a scale of 1:1115000, or 17 miles to an inch. Its compilation took over three years. All the government bureaus contributed; the notes of official and individual travelers, including the compiler, were made use of, and not an entry was made in the map except upon the most definite evidence. This brings out several conspicuous areas in the southern islands still unexplored. The amount of detail entered is surprising. Every mountain, every stream and lake, every town and the name of every tribe, is entered. And one may be assured that all the names are properly spelled, for they have been passed upon by the best authorities in the Philippines.

The Philippine Government has recognized the map as standard and has officially adopted it for all the work of the various bureaus and for all the schools under the department of education. J. P. G.

*The World Book Co., Yonkers-on-Hudson, N. Y.

ECONOMIC NOTES

IN ADDITION to artificial gutta-percha, called gutta-gentzsch, German chemists have recently invented an artificial rubber, which, it is believed, will have material influence in the rubber market. The enormous rise in price of rubber, which has doubled in the last two or three years, places a premium upon success in such experiments.

After many vicissitudes, the Alaska Central Railway which was projected from Seward north to the Yukon valley has gone into a receiver's hands and has been purchased from the bondholders by the newly organized Alaska Northern Railway Company. Seventy-one miles of road are complete and one hundred seventy-one miles additional are under construction. The total distance to Fairbanks is four hundred fifty-seven miles, and it is not believed that the line will be put through in the near future; however, a branch line of thirty-eight miles would open up the Matanuska coal fields, containing both bituminous and anthracite coal in great abundance.

The high price of cotton in 1901-2 led to the introduction of sea island cotton in many of the lesser islands, especially the English islands. The acreage under cotton increased up to 1907. The lower prices, and certain difficulties in maintaining the yield on the same fields, has since caused a falling off in acreage. Whether this decline is to be permanent or not remains to be seen. For some islands cotton seems to offer considerable advantages; since it does not require great expense for mills, like sugar, nor frequent and rapid transportation, like fresh fruits.

The Southern Pacific Railway which is building a trunk line along the west coast of Mexico, is expected to reach Guadalajara about 1912. This will form the third transcontinental line in Mexico.

It is now believed that the railway between Asuncion and Buenos Aires will be completed by December 1910. This will give Paraguay rail connection with the outside world. The new Andean tunnel has reduced the time between Buenos Aires and Valparaiso to thirty-five hours. Passengers must, however, change cars twice, as the mountain section is narrow-gauge.

Important tin deposits have been located in British Nigeria, and a branch from the Baro-Kano Railway has been surveyed into the tin district. In view of the few localities producing tin in commercial quantities, this discovery is of great importance.

The diamond trust which controls the output of the diamond mines in British South Africa is now face to face with competition from the newly discovered diamond fields in German South-west Africa. These diamonds are to be handled by a syndicate in Berlin, comprising a number of leading German banks, and the German government is to receive a share in the profits. E. V. R.

EDITORIAL ANNOUNCEMENTS.

WITH this issue the JOURNAL OF GEOGRAPHY passes under new editorial direction. As the new editor takes up the work, he wishes to express his own sense of appreciation of the unselfish work which Professor R. E. Dodge, the late editor, has for years been doing. At no small personal sacrifice he has kept in the field a geography teachers' magazine. Only those who have some inside knowledge know how large are the drafts on the editor's time made by even so small a magazine as the Journal of Geography. For many years Professor Dodge has given his time and has stood behind the magazine financially; at what sacrifice we do not know, but it has not been trifling. We hope that he finds a partial reward in the knowledge that his work has contributed very materially to the raising of the ideals of geography teaching in this country.

Recently, for the purpose of preparing a bibliography on geography teaching, the writer had occasion to sift the literature in that field, running back over the previous ten year period. He found that far more valuable articles on the teaching of geography had appeared in the Journal than in all other American periodicals combined.

There is no doubt that the work of Professor Dodge, in collecting and publishing, as he did in 1908, the opinions of a large number of leading teachers in this country, was the most important single influence in promoting the present movement for the humanizing of high school geography. While many of us had for some time believed that high school geography needed a larger infusion of the human element, we did not know that nearly all of our colleagues were thinking the same thing. The symposium published in the Journal of Geography in March and April, 1908, revealed how unanimous was the opinion upon the need of reforming present secondary school geography. Out of that symposium it is quite likely that the two committees of the National Education Association and of the Association of American Geographers respectively grew. Both of those committees have presented their reports and they are in general harmony with the views expressed in the symposium before mentioned, and will probably form the platform of the future movement which seeks to reform the present high school geography by making it less purely physical and introducing into it more of what is usually termed human geography.

In the past, the JOURNAL has stood for sane yet progressive geography. Such, we purpose, shall be the continued policy of the magazine.

PLANS FOR THE FUTURE.—Recent numbers of the JOURNAL have consisted of 28 pages. For the present, each issue will contain 32 pages, not less than 28 of which will be reading matter. The present subscription price will warrant an increase in the size of the magazine as the subscription list grows. To make it grow will be the earnest effort of the present management. Nearly 40 of the leading teachers of school and college geography have pledged their cooperation. The former editor is giving the new editor most generous assistance. We confidently believe that, with the loyal cooperation which we are receiving, it will be possible to maintain a geography teachers' magazine which shall grow steadily more useful and indispensable.

Our plans for the year include a series of articles on Geographical Influences in the Development of various states. Professor Dryer opens the series in this number. There will be a series of short papers on The World's Great Rivers and a series on Man and his Environment in various foreign lands. Professor Tarr begins this series with a most excellent aticle on Germany, where he has been a large part of the past year. Part II. of Professor Tarr's paper will appear next month. Professor Blackwelder of the University of Wisconsin who recently spent a year in China, will write concerning that country, and Professor Bowman of Yale will have a paper on the Valley Folk of Northern Chile. Frequent articles on phases of the Teaching of Geography will appear. Considerable attention will be given to material for the grade teachers, such as sets of test and review questions, map studies, and outlines of topics deserving emphasis in teaching the various countries.

We hope to make a special investigation of the whole question of laboratory work in high school geography and publish some of the findings.

Our readers will be kept in touch with the present movement to humanize high school geography.

We invite suggestions, friendly criticism, and contributions of timely material.

(From Bulletin of the American Geographical Society, August, 1910.)

"*The Journal of Geography* has been conspicuous in the movement to give teachers clearer ideas of the content of geography, to introduce more effective methods of instuction and to place in the hands of boys and girls better textbooks and better maps. It has helped to bring about the marked improvements that have been made. But a great deal remains to be done before school geography at home is placed upon the high plane which it occupies in some of the European countries; and there is good reason to believe that this periodical will continue to exert a helpful influence that could not well be spared."

SPEAKING OF DISTANCES AND DIRECTIONS

Did you know—

1. That the Pacific end of the Panama Canal is farther east than the Atlantic end?
2. That, if the southern end of Chile were placed at Florida Cape, Chile would extend northward entirely across the United States and Canada and half way across Hudson Bay?
3. That St. Petersburg is in the same latitude as the southern end of Greenland?
4. That Venice and Montreal are in about the same latitude?
5. That Cape Horn is 25 degrees further south than the Cape of Good Hope?
6. That, if an express train had started out from the earth for Neptune at the birth of Christ, and had traveled 60 miles an hour day and night ever since, it would not yet have covered half the distance?
7. That Cuba would reach from New York to Chicago?
8. That while the earth's atmosphere extends outward several hundred miles, yet half of it by weight lies between sea level and 3.6 miles above?
9. That the entire continent of South America lies further east than Florida?
10. That Glasgow is in the same latitude as southern Alaska?
11. That the mouth of the Amazon is as near to Europe as it is to New York?
12. That the combined length of the Hudson, Delaware, Potomac, James, Rhine, Seine, Rhone, Thames and Elbe rivers would scarcely equal the length of the Amazon?
13. That the Russian Empire extends more than half way around the earth?
14. That Texas is larger than Germany and as large as 212 Rhode Islands?
15. That from the northern to the southern islands of Japan is as far as from Maine to Mexico?
16. That the mouth of the Nile and the mouth of the Mississippi are in about the same latitude?
17. That Alaska is not southwest of the North Pole?
18. That the nearest sailing distance from New York to Liverpool takes ships near to Newfoundland?
19. That, when measured in degrees of longitude, San Francisco is about in the middle of the United States, east and west? (Including Alaska but not including any of our newly acquired island possessions.)

R. H. W.

NEW MATERIAL ON ARGENTINA AND BRAZIL.

From the July *Bulletin of the American Republics*, the following facts are gathered, with some comparisons introduced:

ARGENTINA

It equals in area all of our states east of the Mississippi. Population a little less than Pennsylvania's. Density of population, six to the square mile, or about equal to that of South Dakota.

Buenos Aires is a beautiful modern city of one and a quarter million people, comprising nearly 20 per cent. of the nation's population, and equal to the combined population of all of the remaining cities.

Argentina has much the largest foreign commerce of the South American countries. It exceeds $100 per capita of the population, or nearly three times that of the United States.

The central and eastern provinces are crossed by a net-work of railroads, converging upon Buenos Aires. There are as many miles of railroad in proportion to population as in the United States. The Trans-Andine railway to Chile was opened for traffic last April.

Argentina owes much to immigration. A quarter of a million immigrants arrive yearly, or four times as rapid addition, in proportion to population, as we are receiving.

Argentina lacks minerals. Without coal, manufacturing is handicapped. Most of the manufactures are imported, Great Britain supplying the lion's share, followed by Germany and then by the United States. Ninety-seven per cent. of the exports are the products of agriculture and stock raising: wheat leads, followed by corn and flax seed. Hides, skins, wool and fozen meat total 150 million dollars yearly. There are very extensive vineyards; 100,000,000 gallons of wine annually.

BRAZIL

The largest part of the population is in southern coastal provinces. Amazon system offers the greatest extent of river navigation in the world. Ocean going vessels ascend 2300 miles to the foothills of the Andes.

Rio Janeiro is a splendid modern city of 1,000,000 people. All the large cities except the great rubber center, Manaos, 1,000 miles up the Amazon, are on or near the coast. Practically all of the railroads run from the coast a short distance inland.

Coffee and rubber constitute 82 per cent. of the exports. Four-fifths of the world's export coffee is grown in four provinces near Rio Janeiro, and mostly shipped from that port and Santos: we take not far from half of it. Ninety per cent. of the rubber is shipped from Manaos and Para. We take more than half of it. Minerals are believed to be abundant but they are but little mined. Manufactures are largely imported, Great Britain and Germany supplying the major part. Excellent steamer service to Europe but poor to the United States. General industrial and commercial conditions considerably below those of Argentina. R. H. W.

MAP STUDIES IN SECONDARY SCHOOL GEOGRAPHY

Dissatisfaction with the results of physical geography teaching in the high schools led to the appointment of two important committees in the last two years; one by the National Education Association, and one by the Association of American Geographers. The membership of these committees represented the high schools, academies, normal schools and colleges. Their reports and recommendations have been made. The report of the N. E. A. committee was published in the Journal of Geography September, 1909; that of the Association of American Geographers in March, 1910.

The report of the committee of the Association of American Geographers urges, among other things, the continuance of laboratory work and emphasizes the value of map studies, especially the study of maps which bring out the connection between physical features on the one hand and commercial or other human activities on the other.

The Journal of Geography is in thorough accord with the general trend of this movement. It believes, too, that the study of maps is a highly valuable phase of geography work; that the fixing of map pictures in the mind is one of the most useful things that the study of geography can accomplish. The text books on physical geography make relatively little use of maps. Map exercises are a kind of laboratory work, but a large supply of maps for individual student use in the laboratory is expensive. In connection with courses in the University of Wisconsin, the writer has been experimenting with certain kinds of wall maps upon which sets of questions are based. The map to be studied hangs in the laboratory. Each student has a set of the questions and may go to the laboratory when he chooses and study the map along the lines called for by the questions. Later the questions are answered and discussed in class. The results have been sufficiently satisfactory to lead to the conviction that the plan has merit as a kind of laboratoy work. Fortunately the type of wall maps most serviceable are inexpensive,—within the each of any school. They are the combined physical-political maps, such as those published by Rand, McNally & Company, by W. & A. K. Johnson and probably by other map publishers.

The maps referred to are those which show in different tints of blue the depths of coast and oceanic waters and in different grades of some other color the elevations of the land. The political divisions, rivers, lakes, etc., are appropriately shown.

Following is presented a set of the questions used. Other teachers might prefer different questions. The questions are based upon Rand, McNally & Co.'s Physical Wall Map of North America.